

TWO NEW SOUTH AMERICAN SPECIES OF THE GENUS *KEMPYNUS*
NAVÁS (NEUROPTERA: OSMYLIDAE: KEMPYNINAE)

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Abstract.—*Kempynus digoniostigma*, n. sp. (Chile and Argentina) and *K. tjederi*, n. sp. (Chile) (Neuroptera: Osmylidae: Kempyninae) are described. New distributional data are reported for *K. crenatus* and *K. falcatus*, the two other South American species of this genus. A key to all four South American species of *Kempynus* is given.

Key Words: Insecta, *crenatus*, *digoniostigma*, *falcatus*, *tjederi*, new species, Argentina, Chile

The neuropterous family Osmylidae contains approximately 150 species which are collectively distributed over much of the Old World and South America. Living osmylids are absent from North America, but several North American fossils have been attributed to this family. Adults of most extant species of osmylids are usually found in association with freshwater. Known osmylid larvae are either "subaquatic" (i.e., found in damp situations immediately adjacent to free water) or subcorticolous. The known South American osmylid fauna currently contains five genera and 13 species: *Gumilla* (2 spp.; Brazil), *Isostenosmylus* (5 spp.; Bolivia, Brazil, Ecuador, Peru), *Kempynus* (4 spp.; Argentina, Chile), *Paryphosmylus* (1 sp.; Ecuador), and *Phymatosmylus* (1 sp.; Chile).

The kempynine genus *Kempynus* exhibits a classical Gondwanan distribution (Wise 1991), and, consequently, is of special biogeographic interest. The 12 previously known extant species of *Kempynus* are endemic to either Australia (7 spp.; New 1983, 1986), New Zealand (3 spp.; Wise 1963, 1977, 1991), or southern South America (2 spp.; Adams 1971). This paper reports the

discovery of two additional species of *Kempynus* endemic to South America. In addition, new distributional records for the two previously described South American species, *K. crenatus* Adams and *K. falcatus* Navás, are provided based on material accumulated in the collection of the National Museum of Natural History (NMNH), Smithsonian Institution. A key to the four South American species of *Kempynus* is also presented. Osmylid larvae probably attributable to the genus *Kempynus* (based on the presence of synchronic and sympatric adults) have been collected at the air-water interface along the margins of small streams in Chile (O. S. Flint, pers. comm.; specimens in NMNH).

The morphological terminology used here follows Adams (1971), except for the subgenitale, which Adams treated as part of the female 8th sternite (Adams 1971:47, figs. 2F, 2G; = 8th gonocoxite sensu New 1983, 1986, Adams 1969). I use the term subgenitale to imply the homology of this structure with sclerites found in similar relative positions in the females of other neuropterous families. Terminalic illustrations were made from material macerated in ca. 10% KOH

and stained with Chlorazol Black; setae and trichobothria are not shown.

KEY TO SOUTH AMERICAN SPECIES OF *KEMPYNUS*

- 1. Forewing apex angulate, subapical margin without a well-delimited pale lunate region posteriorly, with or without a biangulate fuscous maculation distally 2
- 1'. Forewing apex broadly rounded, subapical margin with a well-delimited pale lunate region posteriorly, without a biangulate fuscous maculation distally (Adams 1971: 46, fig. 1) *K. crenatus* Adams
- 2. Forewing with a prominent biangulate fuscous maculation distally (Figs. 1, 2), proximal third of subcostal (Sc-R) space with or without well-delimited fuscous spots 3
- 2'. Forewing without a prominent biangulate fuscous maculation distally (dark maculae of other shapes may be present, e.g. Adams 1971: 47, fig. 3B), proximal third of subcostal (Sc-R) space with several well-delimited fuscous spots *K. falcatus* Navás
- 3. Proximal third of forewing subcostal (Sc-R) space without well-delimited fuscous spots (Fig. 1; but minute brownish nebulae may be present); free distal lobes of female subgenitale enclose a narrow, proximally acute, space in ventral view (Fig. 4) *K. digonistigma* Oswald, n. sp.
- 3'. Proximal third of forewing subcostal (Sc-R) space with 2-3 well-delimited fuscous spots (Fig. 2); free distal lobes of female subgenitale enclose a broad, proximally rounded, space in ventral view (Fig. 6) *K. tyederii* Oswald, n. sp.

Kempynus digonistigma Oswald, NEW SPECIES Figs. 1, 3, 4

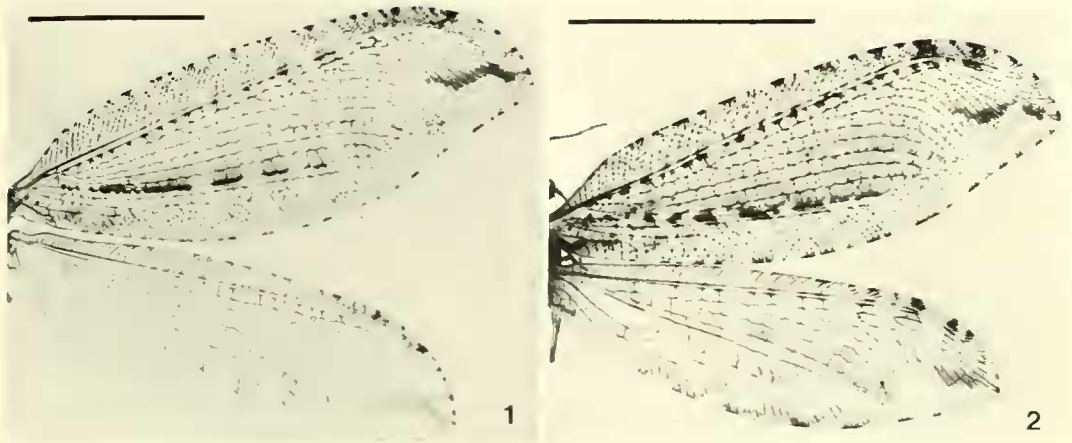
“*Fontecilla graficus* [sic]” Peña, 1987:116 (figure) [misidentification].

Diagnosis.—Distinguished from other South American *Kempynus* species by the following forewing character combination [Fig. 1]: (1) forewing with a prominent, distal, biangulate macula, and (2) proximal third of forewing subcostal space without well-delimited fuscous spots. The following female terminalic characters are also distinctive [Fig. 4]: (1) distal lobes of subgenitale elongate and medially concave, and (2)

median cleft between distal lobes of subgenitale narrow proximally, not broadly rounded.

Description.—Forewing (Fig. 1): Length: 29–34 mm (\bar{x} = 31.5, n = 5 wings). Shape: narrow and elongate, apex angulate, posterodistal margin very slightly falcate. Coloration: membrane and veins irregularly irrorate with fuscous on a pale or hyaline ground; the following fuscous maculae are especially prominent: (1) a longitudinally oriented, biangulate mark apically, (2) a series of small, irregularly spaced marks around wing margin, (3) a row of small marks along anterior radial trace, and (4) a row of larger blotches along CuA. Venation: as in Fig. 1. Nygmata: forewing, one proximal and 1–3 (\bar{x} = 2.2, n = 10 wings) distal; hind wing, 1 proximal and 1–3 (\bar{x} = 1.9, n = 10 wings) distal.

Female terminalia (Figs. 3, 4): 8th tergite with lateral margins produced ventrally and enclosing spiracles of 8th somite. Eighth sternite quadrate in ventral view with a broad membranous emargination posteromedially and a prominent sclerotized process anteromedially, anterolateral angles articulated to anterior angles of 8th tergite. Ninth tergite narrow in lateral view, its anterior margin loosely articulated to a pair of posterolateral 8th tergite lobes. Ectoprocts with anterior margins closely associated with posterior margin of 9th tergite. Ninth gonocoxites free, elongate reniform, the pair dicondylally articulated to a pair of subventral processes on posterior margin of 9th tergite, styli present. Subgenitale composed of a pair of elongate, medially concave lobes which arise from a common constricted base attached to a narrow, transverse, sclerotized arch; lobe length somewhat variable, slightly longer in paratypes than shown in holotype illustrations (Figs. 3, 4). Genital tract components similar to those illustrated by Adams (1971: 47, fig. 2H) for *K. crenatus*, i.e. (1) colleterial gland long and proximally enlarged, (2) unpaired median bursal gland short and tubular, (3) two bilobed sper-



Figs. 1, 2. 1, *Kempynus digoniostigma*, wings (Las Trancas paratype, left wings photographically reversed). 2, *Kempynus tjederi*, wings (holotype). Scale bars = 10 mm.

mathecae present, each attached to bursa by a long, narrow, duct, (4) fertilization canal short and attenuate, incorporated into dorsal wall of median oviduct.

Male terminalia: Very similar to, and not clearly distinguishable from, *crenatus* (Adams 1971: 47, fig. 2A) and *falcatus* (ibid., fig. 2B) on the basis of the single available male; gonarcus arched and setose; 9th gonocoxites crescentic in lateral view, terminating distally in a membranous lobe; "mediuncus" lobes joined proximally, crescentic in lateral view, mesal faces weakly sclerotized, lateral surfaces membranous and each bearing a slender blind tube subapically; hypandrium internum present.

Distribution.—Reported here from Argentina (Neuquén Province) and Chile (Malleco and Ñuble Provinces). *Kempynus digoniostigma* is broadly sympatric with *K. crenatus* and *K. falcatus* in south-central Chile.

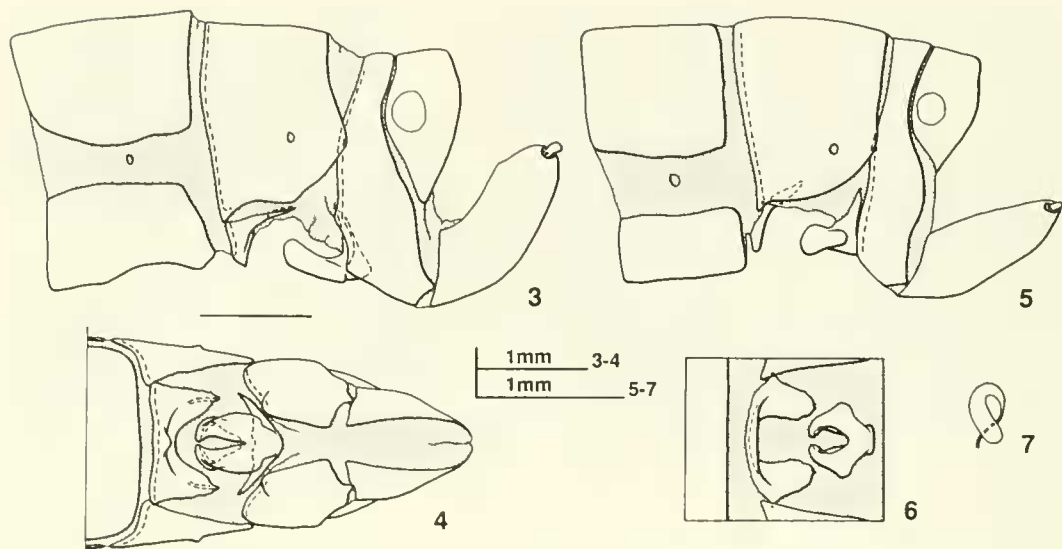
Primary type.—Holotype ♀ (NMNH). Type locality: CHILE: Malleco Prov.: Termas [de] Tolhuaca [= Termas de T[r]olhuaca, 38°14'S 71°44'W]. Verbatim label data: "CHILE: Malleco / Termas Tolhuaca / 46km N Curacautín / 15 mar 1986 / L.E. Pena G.", "HOLOTYPE / Kempynus / digoniostigma Oswald / J.D. Oswald

1991." Condition: Excellent, no parts missing. Terminalia cleared in KOH, stained with Chlorazol Black, and stored in a glycerin-filled microvial pinned below specimen.

Other material examined (1 ♂ and 3 ♀ paratypes).—ARGENTINA: Neuquén Prov.: 1 ♂, "Lago Painun" [= ?Lago Paimún, 39°43'S 71°35'W], 10.iv.1956, 900 m (NMNH). CHILE: Malleco Prov.: 1 ♀, Curacautín [38°26'S 71°53'W], ii.1964, Peña (CAS); 1 ♀, Termas [de] Tolhuaca, 46 km N Curacautín, 15.iii.1986, Peña (NMNH); Ñuble Prov.: 1 ♀, Las Trancas [21 km E Recinto, ca. 36°50'S 71°30'W], 2.iii.1968, Flint & Peña (NMNH).

Etymology.—The specific name is a noun in apposition derived from the Greek "di-" (two), "gonia" (angle), and "stigma" (mark), in reference to the apical forewing maculation.

Comments.—I have examined only one male specimen that possesses the zigzagged forewing maculation of *digoniostigma* and *tjederi*. This specimen is here tentatively referred to *digoniostigma* on the basis of its prominent and distinctly biangulate forewing maculation and its size—its 29 mm forewing length being more similar to the average forewing length of *digoniostigma* fe-



Figs. 3-7. 3, 4, *Kempynus digoniostigma* (holotype). 3, female abdominal apex, lateral. 4, female abdominal apex, ventral. 5-7, *Kempynus tjederi* (holotype). 5, female abdominal apex, lateral. 6, female 8th sternite and subgenitale, ventral. 7, female spermathecal bulb.

males, \bar{x} = 32.0 mm, than it is to the forewing length of the holotype of *tjederi*, 22 mm. However, additional males of both *digoniostigma* and *tjederi* are needed to assess intra- and interspecific variation in these traits and to judge their suitability as recognition traits.

Kempynus tjederi Oswald, NEW SPECIES

Figs. 2, 5-7

Diagnosis.—Distinguished from other South American *Kempynus* species by the following forewing character combination [Fig. 2]: (1) forewing with a distal biangulate macula [macula somewhat broken in holotype], and (2) proximal third of forewing subcostal space with 2-3 well-delimited fuscous spots. The following female terminalic characters are also distinctive: (1) distal lobes of subgenitale short, and each with a prominent lateral angle or lobe [Fig. 6], and (2) spermathecal bulbs J-shaped [Fig. 7], not subspherical or bilobed.

Description (holotype female; male unknown).—FOREWING (Fig. 2): Length: 22 mm. Shape: narrow and elongate, apex an-

gulate, posterodistal margin very slightly falcate. Coloration: membrane and veins irregularly irrorate with fuscous on a hyaline ground; maculations similar to *digoniostigma*, but (1) basal third of subcostal space with 2-3 distinct fuscous maculae, and (2) biangulate mark broken near wing apex [Fig. 2]. Venation: as in Fig. 2.

Female terminalia (Figs. 5-7): Eighth tergite with lateral margins produced ventrally and enclosing spiracles of eighth somite. Eighth sternite transverse anteriorly, anteromedian process absent, sternite produced laterally as a pair of rounded lobes, anterolateral angles articulated to anterior angles of 8th tergite. Ninth tergite, ectoprocts, and 9th gonocoxites similar to *digoniostigma*. Subgenitale constricted at base, lobes medially concave as in *digoniostigma*, but shorter, and each with a prominent lateral angle or bulge; space between lobes broadly rounded proximally. Female genital tract components as in *digoniostigma*, except spermathecal bulbs J-shaped (Fig. 7), not bilobed.

Distribution.—Currently known only

from the type locality: El Coigual, Curicó Prov., Chile.

Primary type.—Holotype ♀ (NMNH). Type locality: CHILE: Reg. Maule: Curicó Prov.: El Coigual [= ?El Coigo, 40–50 km SE Curicó, ca. 35°10'S 71°50'W]. Verbatim label data [bracketed material added]: “CHILE. Cord[illera]. Curicó / El Coigual / 21/25-I-1964 / leg. L.E. Peña” (white rectangle), “HOLOTYPE / *Kempynus* / tjederi Oswald / J.D. Oswald 1993” (red rectangle). Condition: Excellent, tip of right antenna missing, otherwise complete. Terminalia cleared in KOH, stained with Chlorazol Black, and stored in a glycerin-filled microvial pinned below specimen.

Other material examined.—None.

Etymology.—The specific name is an honorific derived from the surname of the late Swedish entomologist Bo Tjeder (d. 1992), who—many years ago—recognized that *Kempynus* contained at least one undescribed species in South America that possessed a zigzagged maculation at the apex of the forewing (P.A. Adams, in litt.).

NEW RECORDS OF SOUTH AMERICAN *KEMPYNUS* SPECIES

Kempynus crenatus Adams, 1971

Previously reported distribution.—ARGENTINA: Neuquén Prov.; CHILE: Ñuble Prov. (Adams 1971).

New records (2 specimens: 1 ♂, 1 ♀).—CHILE: Ñuble Prov.: 1 ♀, Las Trancas, 21 km E Recinto, nr. high waterfall, 1300 m, 17.i.1979, Davis & Akerbergs (NMNH); 1 ♂, Shangri-la, SW side Volcán Chillán, 1600 m, 19–21.i.1979, Davis & Akerbergs (NMNH).

Kempynus falcatus Navás, 1912

Previously reported distribution.—ARGENTINA: Neuquén Prov.; CHILE: Aysén, Bio Bio, Cautín, Chiloé, Curico, Linares, and Malleco Provs. (Adams 1971).

New records (51 specimens: 26 ♂, 25 ♀).—ARGENTINA: Chubut Prov.: 1 ♂, Arroyo

Irigoyen, P[arque] N[acional] Los Alcercos, 29.i.1987, Flint & Flint (NMNH); Neuquén Prov.: 1 ♂, 1 ♀, Pucara, 15.i.1974, Schajorskoj [= Schajovskoy] (NMNH); 1 ♂, Pucara, P[arque] Nac[ional] Lanín, ii.1952, Schajorskei [= Schajovskoy] (NMNH); 7 ♂, 6 ♀, Rio Nonthue, Est[ación] For[estal] Pucara, 28–31.i.1974, Flint (NMNH) [a = alcohol collection, others pinned]. CHILE: Arauco Prov.: 1 ♂, 1 ♀, W Pichinahuel, Cord[illera] Nahuelbuta, 900 m, 14–16.i.1988, Peña (NMNH); BIO-BIO Prov.: 3 ♀, Caledonia, E Mulchén, 700–900 m, 6–15.ii.1981, Peña (NMNH); Cautín Prov.: 1 ♀, Fundo el Coiguc, 27 km NE Villarrica, 500 m, 28.ii./3.iii.1979, Davis & Akerbergs (NMNH); 1 ♂, Villarrica, 12.ii.1964, Cekalovic (NMNH); Chiloé Prov.: 1 ♀, Pio-Pio, 15 km NW Quellén, 10–11.iii.1987, Peña (NMNH); 1 ♂, Ahoni Alto, 30 km SE Chonchi, i.–ii.1989, Peña (NMNH); Linares Prov.: 1 ♂, Malcho, E Parral, 450 m, 7–8.i.1988, Peña (NMNH); Ñuble Prov.: 1 ♂, 2 ♀, Recinto, 22–23.i.1979, 800 m, Davis & Akerbergs (NMNH); 1 ♂, near coastal stream, 17.5 km S Curanipe, 50 m, 25.i.1979, Davis & Akerbergs (NMNH); Osorno Prov.: 1 ♂, 1 ♀, P[arque] N[acional] Puyehue, Ag[uas] Calientes to 2 km S, 600 m, 10–22.ii.1979, Davis & Akerbergs (NMNH); 1 ♂, 1 ♀, P[arque] N[acional] Puyehue, Lago El Toro, 7–8.ii.1978, Flint & Flint (NMNH); 3 ♀, P[arque] N[acional] Puyehue, Río Anticura, 31.i./13.ii.[19]78, Flint & Flint (NMNH); Valdivia Prov.: 1 ♀, 36 km W La Unión, 25–28.ii.1987, 600 m, Peña (NMNH); 4 ♂, 1 ♀, Las Trancas, W La Unión, 5–10.ii.1988, 500 m, Peña (NMNH); 4 ♂, 3 ♀, Conaripe, 7.ii.1986, Peña (NMNH).

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